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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,061	02/11/2004	Tatsuhiko Takahashi	Q79608	3324

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EXAMINER

GIMIE, MAHMOUD

ART UNIT	PAPER NUMBER
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3747

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/775,061	Applicant(s) TAKAHASHI, TATSUHIKO	
	Examiner Mahmoud Gimie	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawachi et al (6,135,090).

Kawachi et al discloses a fuel supply control apparatus for an internal combustion engine, which serves to supply fuel in a fuel tank (1) to an [a] injector (32) installed in a combustion chamber of an internal combustion engine, said apparatus comprising: a crank angle detection section (36) for generating a crank angle signal in synchronization with the rotation of a crankshaft of said internal combustion engine, a cam angle detection section (35) for generating a cam angle signal in synchronization with the rotation of a camshaft (14) of said internal combustion engine, a positive displacement fuel supply section (8) having a suction stroke and a discharge stroke synchronized with the rotation of said camshaft (14) for supplying said fuel to said injector (32), and an effective stroke changing section for changing an effective stroke related to the discharge stroke of said fuel supply section (8), wherein said effective stroke changing section operates in synchronization with said crank angle signal and said cam angle signal so as to change said effective stroke based on said cam angle signal, column 9 and lines 21-27.

With regard to claim 2, wherein said effective stroke changing section decides control timing for said effective stroke based on a period calculated from a cam angle indicated by said cam angle signal.

With regard to claim 3, wherein said effective stroke changing section decides control timing for said effective stroke by using said cam angle signal detected at equal intervals.

With regard to claim 4, wherein said effective stroke changing section changes said effective stroke by correcting a deviation of each pulse of said cam angle signal.

With regard to claim 5, wherein said effective stroke changing section changes said effective stroke by using said cam angle signal on the suction stroke of said fuel supply section.

With regard to claim 6, wherein a period from input timing of said cam angle signal related to the control of said effective stroke changing section to termination timing of the suction stroke of said fuel supply section is set longer than dead time due to an operation delay of said effective stroke changing section.

With regard to claim 7, wherein a period from start timing of the suction stroke of said fuel supply section to input timing of said cam angle signal related to the control of said effective stroke changing section is set longer than a run up time to control said effective stroke changing section.

With regard to claim 8, wherein said effective stroke changing section decides control timing of said effective stroke changing section based on a cam angle indicated by said

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cam angle signal, and changes said effective stroke by counting the number of pulses of said crank angle signal.

With regard to claim 9, wherein said effective stroke changing section decides, based on an operating condition of said internal combustion engine detected by counting the number of pulses of said crank angle signal, whether said effective stroke can be changed or not.

With regard to claim 10, wherein the operating condition of said internal combustion engine includes the rotational speed thereof.

With regard to claim 11, wherein said internal combustion engine has a valve timing control section for controlling operation timing of at least one of an intake valve and an exhaust valve, and the operating condition of said internal combustion engine includes the control state of said valve timing control section.

With regard to claim 12, wherein said crank angle detection section has an untoothed portion corresponding to a specific crank angle position for which no pulse of said crank angle signal is generated, said untoothed portion being arranged so as to correspond to the suction stroke of said fuel supply section.

For details see figures 1-10.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references show methods of controlling high-pressure fuel pump in an internal combustion engine fuel system.

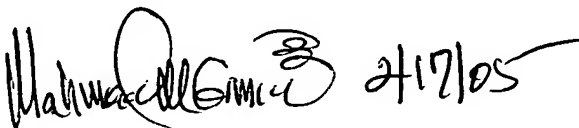
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mahmoud Gimie whose telephone number is 571-272-4841. The examiner can normally be reached on Tuesday-Friday between 7 a.m. -3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Yuen can be reached on 571-272-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MG


MAHMOUD GIMIE
PRIMARY EXAMINER